East Engin.
Library
TS
670
.A1
A57

The MONTHLY REVIEW

Published by the AMERICAN ELECTRO-PLATERS' SOCIETY

A Society
for the Advancement of the Science of
Electro-Plating

SEPTEMBER 1936 · IN THIS ISSUE

Hogaboom—The Executive Secretary 3
Farber—Process Control and Finishing Costs 5
Thompson—Prospects for the Coming Year 18
Bowman—Polishing Grain and its Application 20
A. E. S. Research Committee Members 25
Responsibility of Leadership 26
The Abstract Section 30
Branch News 34
Membership Report 46
Buyer's Guide 50
Branch Directory 51

SUBSCRIPTION $3.00 A YEAR

Entered as second class matter at the Post Office at Springfield, Mass., September 8, 1930, under Act of August 24, 1912.

Acceptance for mailing at special rate of postage, provided for in section 1103, Act of February 28, 1925, authorized September 3, 1926.

FOR INCREASED PRODUCTION

Hanson-Van Winkle-Munning Co. manufactures machinery, equipment and supplies for every metal cleaning and finishing operation. For improved quality, increased production and lower costs, specify H-V W-M throughout your plating and polishing departments.

Business barometers are definitely rising and, as never before, finish is a deciding factor in sales.

To plate small parts faster and better — at less cost — use Hanson-Van Winkle-Munning Mercil Type Plating Barrels. Exclusive features of design decrease both plating time and rejects, assure constant electrification of the work and minimize treeing. All conductors are buried deep in hard rubber or Bakelite, give high electrical efficiency and make it possible to plate more work per ampere. H-V W-M Plating Barrels are manufactured in all sizes and in single and multiple units to meet every production requirement. Write for complete information.

HANSON-VAN WINKLE-MUNNING CO.

MATAWAN, NEW JERSEY

PLANTS: Matawan, New Jersey • Anderson, Indiana

SALES OFFICES: Chicago • Cleveland • Detroit
New Haven • New York • Philadelphia
Pittsburgh • Springfield (Mass.) • Syracuse

D

d, as
ales.

t less
Mercil
es of
jects,
and
deep
trical
more
ls are
mul-
ment.

8504

The MONTHLY REVIEW

Published by the
AMERICAN ELECTRO-PLATERS' SOCIETY

Publication and Editorial Office
90 Maynard St.
Springfield, Massachusetts

VOL. XXIII SEPTEMBER 1936 NO. 8

The Executive Secretary

Every member of the A.E.S. extends his wish for success to our first permanent Secretary, Mr. William J. R. Kennedy. That he has faith in the future of the A.E.S. and that he is confident of the whole-hearted support of each member is evidenced by his resignation of a position as foreman plater where his ability was recognized and respected.

THE MONTHLY REVIEW under his editorship has not only become self-supporting but has been established as the representative oracle of the plating industry. He assisted in the organization of the Springfield Branch and was its first president. He has been most active in its welfare and gave willingly of his time to keep the interest of the members at the working point.

With this background he is well qualified to carry on the new work that the creation of this new office provides and we, members of the A.E.S. have faith in him.

"Faith without works is dead." He has shown us that he has faith in us and is willing to work, we in turn should do everything possible to support his work; the building up of the A.E.S. and prove that we have confidence in him and that his faith in us is not without foundation.

The A.E.S. has made three important steps in three consecutive years, the opening of the pages of THE MONTHLY REVIEW to advertising, the admission of assistant foremen to membership, and the placing of the office of secretary on a basis so that the whole time of the incumbent can be devoted to the interests of the society. That is progress. There is still much more to do. The A.E.S. can make its influence such that the support

that is now solicited will come spontaneously. This should be the goal of each member. The prestige of each member in the electroplating industry will be measured by the prestige of the A.E.S. as an organization.

The research work that has been carried on for several years has commanded the attention of such established organizations as the American Society for Testing Materials. This must be fostered and every society interested in the electrodeposition of metals and every manufacturer interested in electroplating will know of the work that has been done in the endeavor to establish standards of the quality of electrodeposits of metal. This can only be brought about by making known the work that has been done and the work that is now in progress. That is the work of our new secretary. He must, however, have the opportunity to become thoroughly acquainted with all of the results obtained and the status of the present tests, without which he cannot carry weight in his contact with manufacturers, nor be able to intelligently tell the members of the several Branches the progress being made in research.

One of the first and the most important duty of the Executive and the Research Committees is to appropriate sufficient funds so that the Secretary can make a personal inspection of the work done at the Bureau of Standards and of the test plates at the several stations of the A.S.T.M. where they are exposed.

Each and every Branch should extend an invitation to the Secretary to attend a meeting and tell them personally of the standing of the work that they are carrying on. A tour can be arranged so that the expense for each Branch will be well within their means.

It is repeated "Faith without works is dead." Let us hold up the hands of our new Secretary.

Mr. Kennedy we know of your integrity, your ability, your capacity for work and we have placed the advancement of the A.E.S. in your hands. We pledge you our support which is the best welcome we can give you as you enter the new duties before you. May success always be at your right hand.

GEORGE B. HOGABOOM, *First President A.E.S.*

Process Control *and* Finishing Costs

By H. L. FARBER
Westinghouse Company
Mansfield, Ohio
Read at Cleveland Convention of 1936

THE application of coatings for protection and appearance is not new but has shown a marked increase in recent years. In the manufacture and sale of many of the articles of commerce the finish is an important part. From a selling standpoint, this final appearance of the product is nearly as vital to its success as to its ability to serve the initial purpose.

Not so long ago, it was possible to sell unfinished iron, steel, or brass products, such as stoves, irons or other articles which today require an attractive and durable surface. Because of this ever increasing demand for better finishes, and the finishing process taking an important part in the making of numerous products, the cost of the finish has become a considerable item in the final cost of the product. For example, the finish represents 17% of the total cost of building an electric iron, 11.3% of the total cost of an electric refrigerator: the finishing material used is 1% of the cost of an iron and 4.6% of the cost of a refrigerator. With the production of units in large quantities, numbering tens or even hundreds of thousands per year, the value of the finishing materials amounts to a sizeable sum of money, an amount for which the management of any company can justly expect an accounting.

In our production during a recent twelve month period, some areas finished and the value of material used in finishing will be an idea of the importance of finishing.

Plating	*Sq. Ft.*	*Material Value*	*Sq. Ft. Aver. Cost*
Nickel	2,493,027	$22,977	.0092
Chromium	746,972	3,972	.0053
Hot Tin Dip	726,897	22,771	.0313

Synthetic Enamel	*Sq. Ft.*	*Material Value*	*Sq. Ft. Aver. Cost*
Bonderite	14,060,234	42,895	.0030
Primer	13,726,636	72,161	.0053
Intermediate	5,341,829	46,658	.0087
Finish	6,807,969	78,037	.0115
Black Japan	5,121,983	9,775	.0019
Vitreous Enamel	3,596,618	82,722	.0230
	TOTAL	$381,968	

From these figures it is evident that a not inconceivable loss of 5% due to rejects, which require refinishing, or wasted material due to improper handling would represent a loss of some $19,000.00 per year. Inasmuch as losses are often higher and finishing material wasted due to lack of uniform thickness of film, excess material applied, or improper handling of materials can represent in some cases as much as 50% if not controlled, it is apparent that to operate over a long period of time without cost data would be hazardous, if not fatal to the manufacturer.

The finishing must be accurately controlled in order to give satisfactory performance at a competitive price. The quality depends on the kind of material used, the amount applied, and the method of application. The cost, governed by the same factors, is usually classified as to labor, material and equipment. Since the labor, equipment, and kind of material used is usually quite definite—depending on the type of finish—the kind of product being made, it becomes a problem of governing the method of application and amount of finish used in order to accomplish the desired results.

A large amount of time and effort has been given to the development of desirable finishes, the standardization of requirements, and methods of testing for durability. With the information at hand and a normal amount of care and effort in handling the materials and carrying out the various processes, it is possible to accomplish unsuspected results. The one primary requirement for successful control is an individual or a department in the plant, depending on the extent of the finishing operations, whose responsibility it is to be familiar with and capable to follow

through all the various details connected with the application, final quality, and cost of the finish.

The steps related to such control are numerous and depend on the kinds of finish being used. Some of the same rules hold good for application of different types of finish.

The standardization and adherence to a finish procedure is of major importance and should include establishing concentration, viscosity or fineness of processing materials, mixtures, or solutions including those used for cleaning, pickling, or preparation of the surface for a finish. Regular analyses or tests for all vital factors must be made. The kind and number of tests will be determined by the amount of production and rate of change of processing materials. The best method to assure using tests is to have a chart designating the day or hour, providing space for results and additions necessary to maintain the required standard (Example 1). The maintenance of such standards with limits should be used until a proposed change has been tested on a small scale and its merit shown.

All other factors of time, temperature, current density, and so forth, usually important to the process must be designated and maintained. In order to familiarize operators and foremen with these requirements, it is generally advisable to place charts in the department near the operation. The charts will be a form of specification outlining critical factors. (Example 2). With the increase in use of automatic equipment in which all work passes through one series of processing tanks, it becomes even more necessary to control these factors since one faulty step in the proceeding will result in a large number of spoiled pieces; as the time for a complete cycle is long with a large number of pieces in process at one time. With non-automatic equipment, it would be possible to transfer work to other tanks while adjustments are being made without much loss of production.

Racking and holding of pieces during processing must always be given special attention. The parts should be held in such a way that there is a minimum of pocketing and drag-out of material. Excess drag-out results not only in loss of material, but

EXAMPLE 1

MONTH _____

PICKLE ROOM CONTROL DEPT. _____

	PICKLE				NEUTRALIZER			CLEANER			
Day	o/o Acid	o/o Fe	Temp.	Add.	o/o Na_2O	Temp.	Add.	Total Na_2O	Ratio $\frac{A}{T}$	Temp.	Add.
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											
31											

hazard of contamination of successive tanks in the cycle. In most cases work should be placed on carriers in such a way as to receive a uniform distribution of finish. Special cases sometimes occur where parts are racked in a position to obtain the greater thickness of material at places on the surface where it will be of greatest value for wear or protection.

Racks used for electroplating must be built to carry the necessary current, and maintained in good condition to assure good contact and solid holding. Parts permitted to fall into processing tanks and dissolve will result in contamination of the solution. Spray-painted and vitreous enameled parts can be arranged on racks in a way which will result in minimum spray loss by placing the small parts close together on large racks. Surfaces being finished should be held in a position to promote convenient and uniform application of film on the most important part of the surface.

Film thickness measurements on production parts to check back on uniformity of processing operations are always necessary and should be made a regular routine. There are a number of methods of measurements of film and their use depends on type of finish and equipment available. The most common in use include strip tests, weight of film, direct measurement by use of calipers, magnetic thickness gauge, microscopic, Mesle's chord, and the Pfund gauge which operates like the chord method on wet film.

The use of thickness measurements cannot be overemphasized inasmuch as they are related to both quality and cost. Contrary to general opinion, excess material does not always improve quality, but can cause failure especially when it involved succeeding operations of baking and firing. Paint films will be under-baked at the optimum temperature established if the coating is applied in too great thickness on some parts. Vitreous enamel tends to chip when the coating applied is too heavy. Recent tests have shown how film thickness is related to quality when it was found questionable to use apparently good vitreous enameled parts because a thickness over .0235 had a tendency to chip in shipment or in use causing a high cost for replacement.

Thin films due to lack of uniformity in application are equally hazardous to quality and ultimately show up in high cost for replacement of parts or loss of sale for the product and reduced prestige for the manufacturer.

In order to be assured that the finish as being produced is of satisfactory quality, it is necessary to make performance tests on production samples at regular intervals. The result of all tests should be recorded and retained for future use in reference to products made during that particular period of manufacture. (Example 3).

These tests may be either accelerated or normal, depending on the condition to which the product is being subjected. Because of the time element accelerated, tests are usually desirable. The selection of tests to be made is a matter of judgment, those coming nearest to duplicating actual field conditions are always best. At times two or more tests are combined in order to predict the durability under special conditions.

The tests in general use will include those for corrosion, hardness, wear resistance, flexibility, color and appearance.

Tests for Corrosion:

(1) Salt Spray
(2) Humidity usually 100% at 100 degrees F.
(3) Weathering Machine
(4) Chemical Exposure

Tests for Hardness:

(1) Abrasion
(2) Scratch Hardness
(3) Other common methods such as Rockwell, etc.

Tests for Flexibility:

(1) Bend Tests
(2) Flexing Tests
(3) Impact Tests

Tests for Color Retention and Appearance:

(1) Heat
(2) Chemical Exposure
(3) Light Exposure (usually ultra violet)

EXAMPLE 3

CORROSION TESTS
100% Humidity at 100°F

Month_____

Day In	Day Out	Hours Test	Style No.	Order No.	Part	Finish	Condition	Remarks

In addition to those materials applied on the surface as a coating, there are a number of materials used in connection with finishing which require special attention because of their direct relation to the process. These materials include wheels and composition for grinding, polishing and buffing, together with water and air. The close relation between the finish and these operations preparing the surface for finish and final treatment after finishing, make it necessary to have accurate control of such factors.

In the application of that amount of plated finishes mentioned for a twelve months period, the other materials required include:

	Number	Value
Buffs	11,172 sections	$7,391
Compositions, Grease and Emery Cake	117,702 lbs.	10,938
Glue	3,960	1,069
Emery	21,936	3,020
Grinding Discs and Wheels	321	3,287
		$25,705

The materials should be purchased on the basis of performance and cost per unit finished. The need for standardization of the material with proper care and handling is obvious if we expect to accomplish good results. An example of what can happen in controlling these items is shown by a case where at the start of a new design, it was found apparently necessary to use approximately 1,000 paper backed polishing discs per day in order to get production. At a cost of 13c per disc the cost for polishing was considered excessive. Methods of recoating were considered and found impractical but it was later found that used discs could be washed out with naptha and made nearly as good as new. Only 200 new discs are required per day now on the same production. The cost of reconditioning being almost negligible in comparison to that of a new disc.

Water and compressed air used in connection with finishing have an important part, and finishing accounts for a large part of

such material used in many plants. Air used for agitation and drying in plating operations must be free from oil at all times. In spray application of paint and enamel films, the presence of oil and water in the air lines will result in rejects. Traps and separation equipment for removal of impurities from the air should be checked and tests made for contamination at regular intervals.

The water used in conjunction with cleaning, pickling and plating operations as rinses can be used to advantage without permitting waste. The flow of water should be based on the size of the tank and the maximum possible contamination due to drag-in from the preceding solutions. The fact that water costs real money was found during a recent local water shortage in which we were told to reduce consumption or face a situation of having no water for processing work. A survey was made and orifices were changed to give the required number of water changes per minute based on the tank sizes on the particular operation. Before the changes were made, water consumption based on productive hours of 432,755 for one month was 2,669,300 cu. ft. costing $1,557.80. The change-over became effective two months later when for 429,300 productive hours, the cost for 2,249,870 cu. ft. was $747.51, a reduction of $810.00 per month. Part of this saving was due to increased pumping of our own wells, but $335 was the result of reduction of waste. The arrangement of inlets and overflows in water rinse tanks in a way to get full use of the water is a point sometimes overlooked.

The recovery and use of processing materials apparently lost or saleable as scrap gives opportunity for considerable saving. The nickel anode pieces too small for use can be welded into standard size anodes of proper size to be used again in plating with good results. At the present rate, in a year's time, 3,270 lbs. of recovered nickel anodes will be used. The scrap value of nickel ranges from 18 to 27c per pound. New anodes 46 to 50c per pound. The difference minus a small additional charge for welding is saved.

Copper stamping scrap of known quality can be used as a substitute for copper cyanide in electro copper cleaners. The metal

placed in steel baskets held to the sides of the tank gives good results and a savings of $900 per year.

The spray loss in both vitreous enamel and synthetic-resin-type enamels represents a high percentage—as much as 20% of material used—and after every effort has been made to reduce the amount, that part unavoidably lost can be recovered, reworked and used in the finishing process as primer or ground coat, or diverted to some other finishing purpose. It has been found possible and profitable to save and rework such spray mist from synthetic enamel used on refrigerators.

Due to the large volume of this material being used, we were able to recover enough material to supply not only our own requirements, but other factories of the company with material to be used on some production purposes and for the maintenance of buildings and equipment. 12,500 gallons of this material were made during a year's period at a saving to the company of $15,625.00.

Supplementary to controlling all phases of the finishing procedure, it is always desirable to have accurate cost estimates of finishing procedure at regular intervals. Only through such records is it possible to know the trend and variations in the process, because it is otherwise difficult to determine losses or to show the improvement made. The actual determination of costs is not complicated once the areas of parts finished have been established and tabulated. It then becomes a question of obtaining production deliveries and calculating the total area finish during a given period. By obtaining all storeroom deliveries of finish it becomes a matter of simple calculation to get the relation of square feet finished and value of material used for that purpose. (Example 4).

Finishing cost data serves other purposes by giving recent and accurate figures on which to base manufacturing estimates. It also stimulates interest and creates consciousness of the importance of materials and process on the part of foremen and

group leaders when such information is properly prepared and distributed. (Applause).

EXAMPLE 2

ALWAYS FOLLOW THE PROCESS

Wire Rack and Basket Finish

Nickel Plate

Thickness required.
.0004 to .0005 inches.

Time (Use a clock, don't guess)
60 min. at 9 amperes sq. ft.
90 min. at 6 amperes sq. ft.

Current (Be sure hooks and electrical contacts are clean)

Use 6 to 10 amperes for each square ft. of surface plated. Depending on the shape and burning.

Solution

Nickel	3.5 oz. 1 gal.
Sodium Chloride	4.0 oz. 1 gal.
Boric Acid	4.0 oz. 1 gal.
Ph.	6.2—6.4
Temperature	80° F.

(Skim all oil and dirt from the tank before using.)

Racking

Use particular racks provided for each part.
Arrange parts on the rack as specified.
Place the right number of parts on each rack.

Rinse

Time 1 minute.
Clean running water.

EXAMPLE 4

DULUX FINISH

February 29, 1936 to March 14, 1936 Incl.

RANGES AND REFRIGERATORS

			Bonderite		*Primer*		*Finish*	
		Quantity	*Area*	*Total Area*	*Area*	*Total Area*	*Area*	*Total Area*
Type	1	1230	80.38	98,867	45.34	55,768	36.48	44,870
"	2	3309	85.11	281,629	38.72	128,124	37.94	125,543
"	3	100	96.80	9,680	46.64	4,664	59.38	5,938
"	4	1	95.36	95	43.41	43	42.63	43
"	5	3567	66.28	236,421	30.51	108,829	29.73	106,047
"	6	4	73.14	293	33.94	136	33.16	133
"	7	307			62.90	19,310	12.25	3,761
"	8	135			82.90	11,097	16.19	2,186
"	9	3			62.90	189		
"	10	58			82.20	4,768		
"	11	428			72.25	30,923	5.75	2,461
"	12	1483			5.75	8,527	5.75	8,527
"	13	86			58.00	4,988	5.50	473
"	14	1480			48.53	71,824	5.28	7,814
"	15	2			40.10	80	11.50	23
Style	1	70			6.50	455	3.25	228
"	2	9			6.50	59	3.25	29
"	3	8	7.40	59	3.70	30	3.70	30
"	4	17	9.00	153	4.50	77	4.50	77
"	5	38	6.56	249	3.28	125	3.28	125
"	6	25	9.00	225	4.50	113	4.50	113
"	7	24	7.40	178	3.70	89	3.70	89
"	8	204	7.20	1,469	7.20	1,469	3.60	734
"	9	204	2.18	445	2.18	445	1.09	222
"	10	8	9.00	72	4.50	36	9.00	72
"	11	28	9.00	252	4.50	126	4.50	126
"	12	36	12.08	435	6.04	217	6.04	217
"	13	24	10.22	245	10.22	245	5.11	123
"	14	1	9.00	9	4.50	5	4.50	5
Samples	1	92	.89	82	.89	82	.89	82
"	2	399	.083	33	.083	33	.083	33
				630,891		452,876		310,124

EXAMPLE 4

RANGE AND REFRIGERATION

Bonderite

M-1	200# x $.3750 =	$75.00
M-2	700# x .3750 =	262.50
R-1	2020# x .3750 =	757.50
R-2	2020# x .3550 =	717.10
Chromic Acid	186# x .1475 =	27.44
		$1,839.54

$1,839.54 + 630,891 = $.00292 per sq. ft.

Primer

# 64672	970.1 Gal. x 2.0000 =	$1,940.00
Thinner # 3810	149.8 " x .4500 =	67.41
# 8 Reclaimed	836.7 " x .8000 =	669.36
		$2,676.77

$2,676.77 + 452.876 = $.00591 per sq. ft.

Finish

# 1045344	1,645.2 Gal. x 2.5500 =	$4,195.26
# 3810 Thinner	256.6 " x .4500 =	115.47
		$4,310.73

$4,310.73 + 310,124 = $.0139 per sq. ft.

Cleaner

NW #22 2,656# × .0850 = $225.76

$225.76 + 630,891 = $.000358 per sq. ft.

Prospects for the Coming Year

E. STEEN THOMPSON, President, American Electro-Platers' Society

Vacations and the hot summer months have passed and it is time to renew activities in the Branches. Some of the Branches in their endeavor to sustain the momentum gained during the past year have not relaxed their member interest during the Summer. The perusal of the Branch notes found in the REVIEW informs one of the outings, picnics and clam bakes held by the Branches for their members and friends. This all helps to promote the fraternal spirit so necessary to maintain a successful Branch.

The past Convention still affords a topic for discussion. Some members expressed regret at the small representation of members on the Educational program, and seemed to feel that the responsibility rested with the Educational Committee. We have only to point to the notices sent the Branch Secretaries and the requests in the REVIEW for practical papers by lay members to show that every effort was made to have such papers prepared.

Due to the rapid developments in research the average member no doubt feels that any findings along his individual lines would be eclipsed by the type of papers presented by the chemist or physicist. He is at error in this premise since some point brought out in his paper might pave the way for much discussion and be very helpful to members similarly engaged.

We are fortunate in having the welfare of our convention programs engraved on the hearts of those who so graciously gave of their time and knowledge in paving the way toward new developments. The old time plater was similar to the pioneer of early days, in that he had everything to do to get the results in traveling the road to production. Today the chemist has accomplished what the highway engineers have contributed to auto transportation. We travel the route but do not realize the thought and preparation required to perfect it.

Some have felt that some papers were rather complex and required much study. The author required much more time and study in his preparation of material for his paper so we may expect to be required to give some thought to its digestion. The type of articles prepared for the past Conventions has placed them in the category of works of reference and I know no better method of assimilating such articles than having in one's possession a copy of the Convention report. For those who are unable to attend a convention the report supplies a fine medium through which to keep posted, those attending realize the importance of the presentations and a permanent record of them. Although we were forced to increase the price of the report this year it might

be of interest to note that the edition this year was the largest printed.

Chairman P. J. Sheehan of the Membership Committee will soon swing into action with some of his very original ideas for member increase and it is my plea that each Secretary and every member get behind him in his efforts to add to our numbers. No organization can long remain immobile — we must go forward or retrograde, we can never stand still. Give our membership efforts the time needed to spell success. If every delegate would do no more than sign up a new member, it would mean over 150 increase. If every member who comes under the active classification would bring his assistant this would mean a large increase also. The organization needs new members to be trained to take the place of those who through death or circumstance leave our ranks.

Chairman J. W. Hanlon of the Educational Committee needs your suggestions as to the various things your Branch would like to have carried out. He is at present compiling a list of the available speakers who are willing to contribute to the success of the Branch meetings. All Secretaries should write to Mr. Hanlon and give him the names of any members who would talk before a nearby Branch or ask for open dates when you can have one of the speakers already listed.

Give all assistance possible to the New York Convention Committee in cooperating with them by supplying Branch or individual exhibits and at least one paper from each Branch. We should carry on with the impetus originating from within each Branch and make this one of the outstanding years in the organization.

We are fortunate in having our good friend George Hogaboom accept the appointment as our representative to the International Conference on Electroplating to be held abroad next March. We can send our representative with the feeling that we have contributed much to the science of electro-deposition during the years we have been organized and much greater achievements may be expected if we maintain our member interest and continue to grow.

Keep your copy of the REVIEW handy that carries the list of inspection dates for the Research Committee, this is your work, share in it by planning to attend a nearby inspection and learn first hand how the specimens are rated.

It is the earnest desire of the Executive Board that this be a very successful year educationally, numerically and financially — we need never expect to derive from any organization more than we put into it, so proceed to harvest your share by sowing a greater amount of fraternal interest than ever before.

Polishing Grain *and its* Application

By FRANCIS D. BOWMAN

Read at Cleveland 1936 Convention

MR. Chairman and Gentlemen: I am very much afraid that the technically-minded men in the audience are in for a bit of a disappointment. I am so non-technical that I am an advertising man, and you know what that means. The experts in our laboratories were supposed to have delivered to you tonight a technical paper on the practical uses of polishing grains but it was suddenly discovered that a paper decidedly of the same character was to be delivered at another meeting by one of our highly esteemed competitors, the Norton Company, so we asked the privilege of coming before you and showing you a couple of reels of film having that preceded by an informal talk on the general subject of abrasives. I hope those of you who are about to be disappointed in not getting a technical speech or a technical paper or even any paper from us tonight, will forgive us.

May I say by way of introduction that the modern manufactured abrasive today has become one of industry's most necessary tools, not only in your own business, the way that you apply modern abrasives, but in every conceivable industry these modern abrasives are used in some form or another. They have become vitally necessary in every industry you can name. You have only to remember the automotive field, the stone and the marble, the woodworking, the shoe and the leather and countless other fields to realize how production would be slowed up, how finishes and accuracy would be impossible if it were not for the modern abrasives such as my company and a great many other companies manufacture.

Incidentally, I was warned by your Chairman that your Association never permits any advertising in any paper. The minute he saw my card he very definitely reminded me of that fact. So I shall have to confine myself to the subject of silicon carbide, aluminum oxide and forget to mention the trade names.

Back of the present-day story of the modern or manufactured abrasive is one of the real great romances of industry, and I hope you will be interested in my telling it. Some forty-seven years

ago down in Monongahela City, Pennsylvania, there was a man named Dr. Edward Goodrich Acheson. He had a sort of ramshackle building which was a combination laboratory, shop and office. He had been working with Thomas A. Edison for some months. The story is that he was trying to help Edison in the perfection of the first carbon element or filament for Edison's first lamp. Dr. Acheson made something like 20,000 carbon filaments for Mr. Edison, but they were all about twenty-thousandths of an inch oversize and were discarded.

Here was Dr. Acheson with 20,000 useless filaments on his hands. He was very much like the chap who had an order for a carload of hand-whittled shoe pegs and when he was about to make the shipment he got a telegram informing him that the firm had gone into bankruptcy and there he was with a carload of hand-whittled shoe pegs on his hands. Somebody said, "Well, what did you do with them.." He said, "I got rid of them all right. I whittled off the other end and sold them for oats."

Dr. Acheson didn't have quite that outlet. He had all these elements but he also had a great interest in what was in that new fangled thing called electricity. He began experimenting, and then one day he conceived the idea of making an abrasive or grinding material to take the place of the grinder or abrasive materials or abrasives made rather indifferently well by mother nature. I refer to emery, sandstone, garnet, and other natural abrasives. What Dr. Acheson wanted to do was make something harder, sharper, and faster cutting.

He started out with the crudest sort of apparatus. He fashioned an electric furnace from a bowl and into that bowl he put a handful of clay and a handful of coke. In one corner of his shop he had a small power plant. He ran two bare copper wires from that power plant to his little bowl. One wire he twisted around a piece of carbon rod; the other wire he grounded to his bowl, thus completing the circuit. The mere closing of the switch gave him his energy, and in that little bowl he created a tiny electric arc giving off considerable heat.

After several hours of anxious waiting, he looked into the bowl and evidently nothing out of the ordinary had happened. He had a mass of dull, dreary-looking fused stuff, but he picked up what was left of the carbon rod and he found sticking to the end of it some tiny sparkling bluish diamond-like crystals that looked

like some strange jewels. The material looked hard and sharp. He collected the material on the moistened end of his lead pencil and drew them across a piece of glass and found that they would cut the glass as readily as a diamond.

His further experiments brought him enough material to fill a tiny bottle the size of your little finger. With that bottle in one vest pocket and some borrowed money in another he and Mr. McAllister went to New York and interviewed the jewel polishers at Maiden Lane. His idea was to sell his stuff as a substitute for diamond dust. It worked. They crushed the crystals or grains down to a powder and used it as a substitute for diamond dust. Dr. Acheson went back with an order for several ounces of the material at the rate of $880 a pound, or forty cents a carat. I wonder if I dare say this: Today in our plant and in other plants it is possible to make about one million and a half pounds of this material in a month, this silicon carbide. If they were still getting $880 a pound for it, I think the company could afford to raise my salary and still not be financially embarrassed.

That, gentlemen, is the romance that is back of it. Soon after that the plant was moved to Niagara Falls where we took advantage of the power development there, and the uses for the manufactured abrasive made in our plant and in other plants grew and grew until today on the pain of repeating myself, I am saying that our abrasives and the abrasives of our competitors are used in every known industry for every conceivable grinding and polishing job. We like to say that we do about everything from buffing the soles of your shoes to grinding the cavities of your teeth. We grind the metal parts of the beds in which you sleep, and, heaven help us, we sometimes are called upon to polish the hardware on the coffins in which you are buried. There isn't any sort of job or plant in which these materials can not be used in some form or another.

There have been a great many improvements in the manufacture of abrasive products, including improvements in polishing grains. In other words, the manufacturers of modern abrasives must keep two or three steps ahead of the industry. A new steel or a new alloy or a new sheet may come out tomorrow. We must have the abrasive product or the grinding wheel, or whatever it is, set and ready to do a proper job of production finishing of that new material. A new grinding machine may be born to-

morrow, setting up new grinding conditions, and the abrasive manufacturer must be set and ready with the right wheel to do that job on that machine. In other words, he must be ahead of the ever-changing conditions. The same thing applies in your field, in the changing conditions that you have in your materials, your metals, and your methods. We must constantly study to meet your needs and your conditions.

That is about all I have to say, gentlemen, in the way of an introduction. I would like very much to have the privilege of showing you just two reels of motion pictures, and these reels are very general and very wide in their scope. They will take you on a trip to Niagara Falls and through our plant and show you our big electric furnaces, showing exactly how the modern manufacture of abrasives is completed. Then we hope there will be many questions asked regarding your particular use of abrasives.

With me tonight are Mr. Lincoln and Mr. Johns, both of whom are trained to serve you in the matter of polishing grains. These men, in their answers, will give you the technical information that I so sadly lack.

. . . Motion pictures of the Carborundum Company plant at Niagara Falls were shown . . .

MR. BOWMAN (Continuing): I should like to express my thanks and appreciation for the courtesy you have shown me. I should like to get to a discussion now of the various types of polishing grains. I am sure that Mr. Lincoln and Mr. Johns would be glad to answer any questions. Thank you very much. (Applause).

CHAIRMAN HOGABOOM: I am sure we appreciate Mr. Bowman's courtesy in showing us such a valuable picture. He has proved such a good operator of movies that I am wondering whether he was not trained by Franchot Tone, the son of the president of the Carborundum Company.

The paper is now open for discussion. Either Mr. Johns or Mr. Lincoln will answer any questions.

MR. C. H. ELDRIDGE (Detroit, Michigan): What became of the salt added to the mixture? How did it act to purify the melt?

MR. ROY LINCOLN: The salt is added to the furnace to carry away impurities in graphite and sand that is used. It does not melt, or, if it does, the higher heat that reaches soon carries off iron chloride and aluminum chloride and other ingredients.

The A. E. S. CONVENTION

will be held in

NEW YORK

June 14, 15, 16, 17, 1937

•

Let us help Franklin J. MacStoker, General Chairman, and the Convention Committees to make this the greatest event in our history.

We can do this by presenting speakers and exhibits from our various Branches.

New York Branch is steadily getting the Convention details into shape.

A long pull, a strong pull and a pull all together means success.

Let's have representation from each Branch.

Research Committee of the
American Electro-Platers' Society

Mr. W. M. Phillips has announced the members of the Research Committee as follows:

W. M. Phillips, *Chairman*
R11-100 Research Bldg.
General Motors Corp.
Detroit, Michigan

E. A. Anderson
New Jersey Zinc. Co.
Palmerton, New Jersey

W. Blum
Bureau of Standards
Washington, D. C.

G. M. Cole
Delco-Remy Division
General Motors Corp.
Anderson, Indiana

G. B. Hogaboom
Hanson-Van Winkle-Munning Co.
Matawan, N. J.

Carl Huessner
Chrysler Corporation
Detroit, Michigan

B. H. McGar
Chase Companies
Waterbury, Conn.

Walter R. Meyer
General Electric Co.
Bridgeport, Conn.

P. M. Savage
McGean Chemical Co.
Republic Building
Cleveland, Ohio

Jos. Sexton
Sargent Company
New Haven, Conn.

Erwin Sohn
Standard Sanitary Co.
Louisville, Ky.

Claude S. Tompkins
J. B. Ford Company
3958 Calumet Ave.
Chicago, Ill.

W. A. Wesley
International Nickel Co.
67 Wall St.
New York City

President A.E.S.
E. Steen Thompson
905 West Tenth St.
Erie, Pa.

Secretary-Treasurer
W. J. R. Kennedy
90 Maynard Street
Springfield, Mass.

*Responsibility of Leadership**

THE TRAVELERS STANDARD

Practically every man "worth his salt," aspires to leadership in some form or other — a trait handed down through the human family, perhaps from our earliest ancestors. However, the urge to direct a group of fellowmen in their activities does not always imply that ability exists to do so; therefore, success or failure can seldom be predicted accurately, and often can be determined only by the trial-and-error method. It has been said that leaders are born, not made, and undoubtedly this statement is true, in general.

On this particular occasion, let us consider the leader we know, variously, as the "supervisor," "foreman," or "gang-boss," who directs the average workman in his daily industrial occupation. Usually, this man has worked up through the ranks and, as a result of apparent or actual outstanding ability, has brought himself into the limelight and reached a position of authority. Altogether too frequently, the ability of a man to get others to work effectively is considered to be his chief qualification for promotion. This, admittedly, is highly important in these days of close competition, but there are other essential factors which must not be overlooked. For instance, a foreman should be a model of what he expects from others and should have a balanced temperament, real human feeling for the men in his charge, and sincere concern for their welfare. This last-named qualification is what I have been leading up to, for the chief requisites of a successful foreman are an understanding of every individual under his control, and a feeling that he is solely responsible for every employee's safety during working hours.

Why should not the foreman be held accountable for the safety of his crew? The authority vested in him to give orders with respect to the amount and kind of work to be done, also gives him the right to make sure that the work is carried on in a *safe* way. Workmen know that certain standards of quantity and quality are required of them, but under lax or indifferent safety supervision, some of them feel that the manner in which they accomplish their quotas is nobody's concern but their own. This may explain why the members of one work-crew will frequently suffer

*An address delivered at the Erie Safety Conference, Erie, Pa., by Edwin H. Rowland, Supervising Engineer, THE TRAVELERS.

disabling injuries while another similar group will make a record of a million or more man-hours without any major injuries. The attitude of the foreman is reflected all down the line. If accomplishment of the day's work results in the death or disablement of a wage earner, the man in charge of the operations must bear the responsibility because he has the authority to insist that every precaution be taken to avoid accidents.

An example of the disastrous effect of a foreman's laxity came to my attention several years ago. It seems that an expert textile-mill worker was very fond of his liquor, and had formed the habit of laying off for two or three days at a time, rather frequently, to go on a spree. His department foreman or overseer, was an indulgent sort of person and tolerated these lapses over a period of years, chiefly for the reason that the worker was an expert in his line, but partly because of his reluctance to argue with the fellow. In consequence, these occasional sprees came to be looked upon by the worker as a *right*. The time came, however, when a new overseer was appointed, who warned the absenting mill worker, after the first delinquency under his supervision, that the next spree would mean his dismissal. The warning was disregarded and the man was discharged. A few days later, he and his son came to the mill and attacked the overseer with knives, inflicting injuries which necessitated long and expensive hospital treatment and which resulted in permanent disablement. Of course, father and son went to prison for a long stretch. Primarily, this trouble resulted from the first overseer's failure to enforce discipline.

Without question, many workmen are difficult to handle. Some have violent tempers, others are downright careless, and still others seem to be born with the idea that circus stunts and chance-taking are quite clever. There are also those that are stubborn—they are opposed to changes in procedure—those that are uneducated and do not learn easily, and men who are temporarily accident-prone because of personal troubles or worries of one kind or another.

The question will probably be asked what is to be done with men who refuse to obey safety instructions but are otherwise good workers; and what action is to be taken when dangerous short cuts are indulged in, some of which may *seem* to result in increased production. In general, it may be said that dangerous

men and dangerous short cuts cannot be tolerated in industry —they cause accidents which result in injuries to employees and in increased expense to employers. A capable foreman will recognize this fact and will let it be known, definitely, that in his department it is just as important for a man to work in the *safe* way as it is for him to set up his machine properly or to use the correct tools or to do anything else necessary to insure satisfactory quality and quantity of goods produced or of services rendered. He knows, or should know, each man's limitations and characteristics, and should apply corrective measures accordingly. This, in a nutshell, is the basis of good foremanship as applied to industrial accident prevention.

Too often foremen assume, incorrectly, that their men know just as much about the work as they do themselves, and that their (the foremen's) job is to see that work is done in the least possible time, losing sight of the fact that their own knowledge was acquired only after years of practical experience during which, perhaps, many mistakes were made. This is an unfortunate and unwise view of the situation because, in the first place, many employees must have competent guidance throughout their entire lives, some having no higher ambition than to remain merely ordinary workers. Secondly, young men with little or no previous experience in industry are continually being added to the working force, for whose training the foreman is directly responsible. Necessarily, the foreman must know the safe way to do the work and must convey this information to the beginners. If every worker received early and thorough safety training, there would be fewer accidents.

It is only in recent years that the responsibility for the safe conduct of work has been placed on the shoulders of the foreman. Many supervisors still resent being taken to task for injuries occurring to the men in their charge. Would it be too much to say that a foreman who has this feeling of resentment practically admits that he lacks the supervising ability to control his crew, even though the work, as far as quantity is concerned, may be satisfactory? Leadership can be attained only by accepting responsibility. Problems necessarily arise which must be solved and the rewards go to those who solve them correctly. Maintaining production, and ***keeping the employees safe***, are the chief problems of the foreman.

It has been determined by a study of industrial accidents that 98 per cent. of those now occurring are of preventable types. They are caused either by human failure or by unsafe physical conditions that could be corrected. What a golden opportunity is presented here to reduce the terrific toll of human suffering by the exercise of commonsense supervision on the part of the key man—the foreman. It is true that vision and understanding are required. What foreman would admit that he lacks these qualities?

Those of us who are almost constantly engaged in visiting different industrial establishments and field operations, can determine almost instantly on entering a department or on looking over a crew of field men, just what type of foreman is in charge. If he is competent, the work will be progressing in a methodical and safe manner—there will be no lost motion, each man doing his proper part.

Work under the incompetent man will be just the reverse. Tools will probably be in poor condition, the safety equipment will be unsuitable or wholly lacking, and a general go-as-you-please method of working will be apparent. Production may be maintained at a reasonable level, but accidents are likely to be numerous and the doctors will probably be kept busy.

Frequently, a foreman has two or more widely separated jobs in progress at one tine. If something goes wrong on one of them, because of the violation of a safety instruction when he is not present, an attempt may be made to use his absence as an "alibi." The competency of the foreman enters the picture here, again, because if the crew had been properly trained, *safe performance* would have received just as much attention as the quality of the work that was being done; and surely the work must be done satisfactorily whether the foreman is immediately on the job or not. Any error in quality, quantity, or safety, must be accepted as a reflection on the foreman's ability.

The foregoing may seem rather rough on the foreman. However, matters concerning the welfare of the human family cannot be "handled with kid gloves." Millions of persons are injured and thousands are killed every year in the process of earning a living. Something must be done to stop this, and the foreman is the man to do it. If he (individually and collectively) will accept the responsibility, which is his without question, a great deal of misery now endured will cease to be.

The Abstract Section

JAMES W. HANLON, *Chairman, Program and Educational Committee*

Bright Chrome—Grey Chrome—Black Chrome, (*Glanzchrom—Grauchron Schwarzchrom*)—A. WEISS, *Oberflächentechnik*-Vol. **13,** 1936, page 101. The author discusses the formation of bright chrome, grey chrome, and black chrome by varying the temperature and current density used in chromium plating. Black chromium is discussed in some detail. Black deposits may be obtained from sulphate baths operated at current densities from 900 to 1500 amperes per square foot but they have a greyish tone and are not continuous. Good deposits of black chromium may be obtained from solutions containing acetic acid when operated at low temperatures (60°F), and at current densities ranging from 900 to 1300 amperes per square foot. The voltages employed range from 11 to 14 and because of the high current densities used excellent exhaust facilities must be provided to remove the gases evolved. For sustained production cooling facilities must be provided.

The black color of the chromium is probably due to its fine state of subdivision and to the strong evolution of hydrogen. No co-deposited oxides have been found with the chromium. The hardness of the black chrome is high but does not reach the hardness of grey chromium. It is sufficiently hard, however, to offer considerable resistance to abrasion. Direct deposition of black chromium is not recommended and it has been found to be more expedient to either deposit a layer of nickel or nickel-bright chromium before depositing the black chromium upon the base metal. Black chromium is very suitable for heat and abrasion resistance in cases where black nickel or lacquer would be unsuitable. It has been used to advantage for name plates etc. which have first been bright chrome plated and then followed with black chromium which would deposit upon the projecting letters or designs giving a durable contrasty finish of black and white chrome. The high current densities necessary to deposit black chromium will retard the application of it commercially.

WALTER R. MEYER

The Determination of pH Values in Plating Baths, (*Die Bestimmung der p H-Zahl in galvanische Bädern*), R. SPRINGER—*Die Metallwaren-Industrie und Galvano-Technik* Vol. **34,** 1936, page 211. The Langbein-Pfanhauser-Werke of Leipzig has fulfilled a long-felt want in supplying an easy, rapid, and economical method of measuring pH. Indicator papers have been prepared which contain dyes which give different colors through definite pH ranges. A pH determination is made by immersing the strip of indicator paper, removing it from the solution and shaking off the excess plating solution, and then reading off the pH color band which most closely approximates the color of the indicator band which is in the middle of the strip. pH papers are supplied for nickel plating solutions with low nickel contents and pH's ranging from 5.2 to 5.7, for strong nickel solutions in the pH range from 3.7 to 5.0, and for acid

zinc baths from pH 3.7 to pH 5.3. Thus it may be seen that the test papers must be made for definite solutions considering both the metal concentration and the pH range.

WALTER R. MEYER

Plating to Specifications — By F. C. MESLE — The necessity of plating to specifications is, naturally, becoming increasingly important. Five factors are emphasized. These are; adherence, thickness, appearance, protective value and wear resistance. Recent work at the National Bureau of Standards has provided the basis for setting standards of thickness for the various metals. Definite standards for all the other factors have not been developed. The author suggests an adherence test that might be developed satisfactorily. Plating to thickness is discussed at length.

E. T. SHEEHAN

Avoiding Current Losses in the Plating Shop — By W. M. PHILLIPS— There are frequently numerous unsuspected power losses in the plating department. Tests, readily accomplished, are suggested to answer the question — "How many amperes per kilowatt hour paid for are being used to plate with?" Particular attention is accorded to these various sources of power loss; motor generators, buss lines, tank linings, plating solutions, racks, rheostats and tank arrangements. E. T. SHEEHAN

Some Properties of Nickel Deposits — R. J. McKAY — *Metals & Alloys* Vol. **7,** 193-8 August 1936 — Article discusses recent developments in nickel plating practice. By controlling various factors such as Ph, current density, cathode agitation, temperature and composition of solution, it is possible to produce nickel deposits with a wide range of physical properties and appearance. These range from dull ductile nickel deposits which can be easily formed, to bright brittle deposits with a hardness greater than is possible to obtain by cold rolling. Also deposits up to 7/32" in thickness, hitherto difficult to obtain.

The importance of study and control of these factors is emphasized and a short discussion of each is given in relation to the corresponding properties of the deposit. Crystal size, in general, decreases with an increase in hardness. The use of brighteners permits reduction in cost due to elimination of nickel buffing. PHIL J. RITZENTHALER

Bright electrodeposition of Cobalt. A. CHAYBANY. *Metal Ind.* (London) **48,** 721, 1936. Bright cobalt deposits were obtained at room temperature from a bath containing

	oz/gal.
Cobalt ammonium sulphate	27
Sulfuric acid	1.3
Hydroquinone	0.03
Sodium hydrosulphite	0.007

and also from a bath containing

	oz/gal.
Cobalt ammonium sulphate	27
Ammonium Acetate	4
Acetic Acid	0.1
Formaldehyde	0.4
Cadmium sulphate	0.03

Cadmium salts have about the same brightening effect in cobalt as in nickel baths.

W. BLUM

The hardness of electrodeposits of nickel. JEAN CAHOUR: Compt. rend. **202** (8) 659, 1936. Measurements of hardness were made with a pendulum on deposits from a bath containing

	oz/gal.
Nickel sulphate	13
Ammonium sulphate	1.7
Ammonium chloride	1.2
pH = 6.5 to 6.7	

The measured hardness varied with that of the base metal unless the deposit was at least 0.004 inch thick. The hardness increased with increased current density up to 11 Amp/ft and then decreased. The hardness decreased as the temperature increased up to 122° F., and then increased. Addition of gelatine to the bath increased the hardness up to a certain concentration and then decreased it. The harder deposits have a finer crystal structure.

W. BLUM

NEWS ITEM

The Lea Mfg. Co. of Waterbury, Conn. announces the appointment of LEA PRODUCTS COMPANY, 686 Notre Dame St. West, Montreal, Canada as exclusive agents in Canada for its entire line of plating, buffing and polishing supplies.

Among these are the well-known LEA COMPOUND, a patented, greaseless composition that is widely used, particularly in producing Satin finishes. Another product is LEAROK, a buffing composition without free grease which is excellent for imparting high color to metal articles of all kinds, lacquered surfaces and plastics. A third product is LEA NICKEL GLO, an economical addition agent for producing bright finishes.

NEW PUBLICATION BY METAL INDUSTRY

The first issue of "Abrasive and Cleaning Methods" by the Metal Industry Publishing Co. has just been published. The industrial world will hail this new magazine with sincere appreciation. Interesting articles on grinding, polishing, cleaning, pickling, burnishing, etc., are included in the makeup of the book. Our best wishes for a successful future to the new publication.

SITUATION WANTED

By a practical foreman electroplater with 36 consecutive years experience in the electrodeposition of Gold, Silver, Nickel, Copper, Bronze, Brass, Cadmium, Chromium, Black Nickel; also oxidizing, barrel burnishing and plating. Can operate semi and full automatic plating machines. Expert on bright Copper, Brass and Nickel. Experienced in the plating of Wax, Master, Mother and Stamper Matrices for the production of phonograph records; having had charge of such a department in which one ton of copper was deposited every 24 hours; each shell being 27/1000th inch thick. Can control solutions by chemical analysis; and have installed many plating equipments. Am married and willing to go anywhere in U. S. A.

Address: R. F. C., Sr.
c/o Executive Sec'y,
A. E. S.

STANLEY

THE KEYSTONE

upon which we have successfully built our reputation on industrial coatings is our Research, Plant Control and Sample Laboratories.

We have successfully solved the coating problems of a steadily increasing number of manufacturers.

May we serve you ?

LACQUERS - SYNTHETICS - ENAMELS
JAPANS

THE STANLEY CHEMICAL COMPANY
EAST BERLIN, CONN.
A Subsidiary of The Stanley Works
New Britain, Conn.

ALPHA CHROMIC ACID
(An Addition Agent)

Enables you to produce bright chrome plating in either hot or cold solution. It also enables you to wire your work the same as for nickel plating, or you can use your present method of racking. Assembled articles are easily plated when Alpha Chromic Acid is used in the make-up of your solution. The work can be removed from tank, inspected and returned without destroying bright finish. The throwing power is very much superior to anything now on the market. If you have a bright nickel plating solution you can wire your work, nickel plate it, rinse in cold water and transfer directly to the chrome solution. Owing to the low current density used the wires will not burn off, and there will be no wire marks on the work. You do not need a special generator, as current density used is so small (30 amps. per sq. ft.) that you can take the current from regular line supplying nickel tanks. Send for full particulars.

LOWELL
RESEARCH LABORATORIES
LOWELL, MICHIGAN

50 years of Service

on the most varied and exacting cleaning tests.

KALYE

A heavy duty cleaner that can be used on rough work and on the most delicate of jewelry finishes.

Not the cheapest but sold on its merits.

Send for a free copy of our Kalye manual.

Manufactured by
RUMFORD CHEMICAL WORKS
RUMFORD, R. I.

Business and Social News

BRANCH NEWS

Educational Activities

ANDERSON BRANCH

Anderson branch met for a dinner meeting, August 10th at the Y.M.C.A. There were twenty-one members and guests present for dinner with several more coming in later.

After dinner, President Minton greeted and introduced Mr. Gustavus Soderberg of the Udylite Co. as the speaker of the evening. Mr. Soderberg spoke on zinc plating, dwelling mainly on cathode and anode efficiencies with varying amounts of sodium cyanide and caustic soda.

He passed around many graphs showing these efficiency curves. At the conclusion of his talk, Mr. Soderberg was plied with many questions and the resulting answers and discussions were of interest to all.

There was no business brought up and the meeting was adjourned at 9 P. M.

LUCIEN R. HINSCH, *Secretary.*

CLEVELAND BRANCH

The regular monthly meeting of the Cleveland Branch of the American Electro-Platers Society was held at Hotel Carter Saturday, August 1st, 1936.

The meeting was called to order by our president, Mr. W. D. Scott at 8.15 P. M.

The minutes of the previous meeting were approved as read.

Application for membership was made by Mr. Bob Renton of J. B. Ford Company, as associate.

The following candidates were elected as active members:

Washington Kent Shockley
Leroy Camel
August R. Hoffman

It was regularly moved and seconded that we join The Master Platers in a joint stag picnic to be held at Sunnybrook Gardens, Saturday, 15th of August, and pay our share of expenses.

The secretary was ordered to notify all members of this picnic.

Mr. Scott appointed the following committee to make arrangements for a cla, bake to be held in the latter part of September inviting the wives, children, and other members of their families.

Mr. J. C. Singler
Mr. Elmer Peterjohn
Mr. P. R. Lyons

It was regularly moved and seconded that our September meeting be postponed one week later to September 12th.

It was regularly moved and seconded that the convention committee report be received and committee be discharged with a vote of thanks.

Motion was made that we give Mr. E. Steen Thompson an extra vote of thanks for his untiring effort in putting the convention over with a bang. It was the best ever attended. The total number of tickets sold was: gents 445 full books and 27 banquet and for the ladies 99 full books and 26 banquets, making a total of 597.

It was regularly moved and seconded that after we receive the check from

INDUSTRIAL CLEANING MATERIALS

for ALL Purposes

●

METEX

Metal Cleaners

●

PLATING EQUIPMENT
BUFFING COMPOSITIONS
UDYLITE CADMIUM SERVICE
COMPLETE CHEMICAL SERVICE

●

MacDermid Incorporated

WATERBURY, CONN.

Please mention THE MONTHLY REVIEW *when writing*

the Publicity committee that the convention account be closed and money transferred to the Cleveland Branch account.

Motion was made by Mr. Singler that the Cleveland Branch donate $800.00 to the Supreme Society. Mr. Carlson amends the motion to add $200.00 more to the donation to make it $1,000.00 Voted on and carried.

There being a vacancy as Librarian due to Mr. Matts resignation, our president appointed Mr. Carlson of Erie, Pa. to fill his post.

There being no further business, move made we adjourn.

WILLIAM O'BERG,
Secretary-Treasurer

MILWAUKEE BRANCH

The Milwaukee Branch A.E.S. held its regular monthly meeting, August 13, 1936 with President Dexter Rhodes presiding. Along with a nice attendance we had two out of town guests; Mr. Jake Hay and Mr. Bill Meggers.

Mr. Jack Geissman, our Picnic Chairman, reports everything in readiness.

Mr. John Skeba, Racine and Mr. Chas. Unke, Milwaukee, were elected active members.

Mr. Bill Brandt, a member since 1921, died July 26, 1936. He was a good member and will be missed.

Board of Managers and Librarian are getting ready for a very active fall.

ROMAN C. BINDER, *Sec'y*

CHICAGO BRANCH

The regular monthly meeting of Chicago Branch was held August 8 at the Atlantic Hotel, President G. Jelinek presiding and all other Officers present.

Mr. D. B. Stockton and Mr. W. B. Tall were elected to Associate membership. Mr. C. E. Proudfoot, Mr. H. W. Kuckuck, Mr. V. Kubish were elected to active membership.

Mr. F. J. Hanlon, Mr. R. Hazucha and Mr. M. L. Longfield reported that all plans were complete for our joint picnic with Milwaukee branch.

Chicago Branch Officers and members were very sorry to hear that Mr. Tom Donnelly was taken to the Mercy Hospital for an operation. It has been reported that Tom is improving and Chicago Branch extends its best wishes and hopes that Tom will soon be back in our midst.

The Librarian, Mr. O. E. Servis found the following questions in the question box.

No. 1. *What is the best etching solution for preparing steel for hard chrome plating.*

EXPERIENCED
ELECTROPLATERS
prefer
ANACONDA
Copper Anodes

...because their unexcelled purity assures uniform corrosion, the highest quality deposit in the shortest possible time and low scrap losses. Furnished with suspension holes drilled as desired, or tapped for end hooks.

ANACONDA

THE AMERICAN BRASS CO.
General Offices, Waterbury, Conn.
Offices and Agencies in Principal Cities

More Work at Less Cost

THE BIAS BUFF (Send for Trial Order)

To most users all buffs look about alike. Made of cloth —pretty well made too—all sizes—and great claims are made as to quality and wear.

But test these claims out on a long tough job. If the buff stands up, O.K. If it doesn't ! ! ? ! We urge you emphatically to use Bias Buffs. We also carry a high quality polishing compound. Try it.

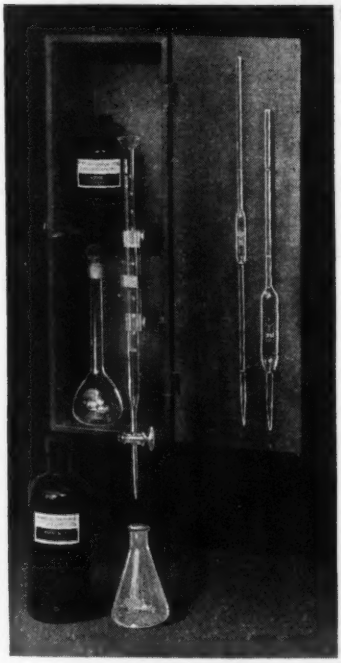
BIAS BUFF & WHEEL CO., Inc.
430 Communipaw Ave. Jersey City, N. J.

TO keep pace with modern production methods our laboratory has developed over 220 efficient cleaning compounds. These meet today's most exacting requirements.

XCEM and PERMAG are trade-marked products. These cleaners are the results of 26 years of experience and research by experts.

Get acquainted with our field men. We have them in principal cities. Call on us for advice. No obligation. Warehouses in all large cities.

MAGNUSON PRODUCTS CORPORATION
Third & Hoyt Sts. . . . . Brooklyn, N. Y.



NOW!

DETERMINE

BORIC ACID

IN NICKEL SOLUTIONS

RAPIDLY
ACCURATELY
EASILY

READS DIRECTLY IN OUNCES PER GALLON OF BORIC ACID.

Price $12.50 net at Chicago

Combined Boric Acid and Chloride Set at $15.00 net at Chicago

KOCOUR CO.
4725 S. TURNER AVE.
CHICAGO

Answer. Dilute Nitric acid solution, but current density, and Temperature play the most important part in hard chrome plating.

No. 2. Will caustic soda effect changing over a zinc solution to Cadmium caustic content about 3½ oz.

Answer. No, the caustic will not effect any change.

No. 3. Which is the best as a brightener for a nickel solution — metallic cadmium or cadmium chloride?

Answer. Cadmium chloride is the easiest to control.

J. W. HANLON, *Sec'y*

CHICAGO AND MILWAUKEE BRANCH PICNIC

Chicago and Milwaukee Branches held a joint Picnic, August 16, 1936, at Lake Marie Antioch, Illinois, and it was a great success. All the Branch Officers and families were there also the Supreme First Vice President and Second Vice President of the National Society.

There were many races and many prizes and everybody was happy. General Chairman, J. C. Geissman was ably assisted by members from both Branches.

There was plenty to drink and ice cream to eat. Swimming was good, and the day was excellent.

The Firms donated many prizes, and very nearly everyone received some kind of a prize.

The day started at eight A. M. and finished about eight P. M. There were present between four and five hundred men, women, and children.

We thank all who donated prizes, and all who attended, and hope to see you at our Annual Banquet in January.

THE COMMITTEE

Cutting and Polishing Compounds

in cake form for hand and automatic machines. Any size cake to suit your requirements.

Cutting down, Buffing, Polishing, and Mirror Finishing.

Steel of all kinds including Stainless Steel and Stainless Iron.

USERS OF GLUE TAKE NOTICE!

Idings Cement and Thinner is doing an excellent job for many of our customers.

We would like you to get these same good results. Let us help you save money. Full particulars on application.

HARRISON & COMPANY
HAVERHILL, MASS.

DETROIT BRANCH OUTING

The outing of Detroit Branch was held at Sandy Mac's Golf Club on Saturday, August 8, 1936. There was a fine attendance and the enthusiasm regarding the outing was so intense that the Branch expects to make the picnic an annual event.

The following is a list of the winners in the different games and races.

Fat Men's Race, Mr. Larry Nagel.

Kickers' Golf, Mr. R. Redman and Mr. A. B. Wilson.

Open 50 Yard Dash, Mr. Leo Paul.

Three Legged Race, Mr. Redmond and Mr. Keyes.

Golf driving Contest, Mr. Leonard; 2nd Prize, Mr. G. Meyers.

"Money Player"

The big-league ballplayer has that extra something which pulls him up from mediocrity . . . that extra something which means winning ball games . . . So may your product rise above its competitors if it has the advantage of an EGYPTIAN finish.

The EGYPTIAN line, including lacquers, lacquer enamels and synthetics, is a complete line for all industrial finishing. Any one of these finishes is insurance for fine appearance . . . fine performance and increased sales.

The next time you are in the market for a finish call on EGYPTIAN. We will be happy to discuss the matter with you.

EGYPTIAN · LACQUER

THE EGYPTIAN LACQUER MFG. CO. • ROCKEFELLER CENTER, NEW YORK

Answer. Dilute Nitric acid solution, but current density, and Temperature play the most important part in hard chrome plating.

No. 2. Will caustic soda effect changing over a zinc solution to Cadmium caustic content about 3½ oz.

Answer. No, the caustic will not effect any change.

No. 3. Which is the best as a brightener for a nickel solution — metallic cadmium or cadmium chloride?

Answer. Cadmium chloride is the easiest to control.

J. W. HANLON, *Sec'y*

CHICAGO AND MILWAUKEE BRANCH PICNIC

Chicago and Milwaukee Branches held a joint Picnic, August 16, 1936, at Lake Marie Antioch, Illinois, and it was a great success. All the Branch Officers and families were there also the Supreme First Vice President and Second Vice President of the National Society.

There were many races and many prizes and everybody was happy. General Chairman, J. C. Geissman was ably assisted by members from both Branches.

There was plenty to drink and ice cream to eat. Swimming was good, and the day was excellent.

The Firms donated many prizes, and very nearly everyone received some kind of a prize.

The day started at eight A. M. and finished about eight P. M. There were present between four and five hundred men, women, and children.

We thank all who donated prizes, and all who attended, and hope to see you at our Annual Banquet in January.

THE COMMITTEE

Cutting and Polishing Compounds

in cake form for hand and automatic machines. Any size cake to suit your requirements.

Cutting down, Buffing, Polishing, and Mirror Finishing.

Steel of all kinds including Stainless Steel and Stainless Iron.

USERS OF GLUE TAKE NOTICE!

Idings Cement and Thinner is doing an excellent job for many of our customers.

We would like you to get these same good results. Let us help you save money. Full particulars on application.

HARRISON & COMPANY
HAVERHILL, MASS.

DETROIT BRANCH OUTING

The outing of Detroit Branch was held at Sandy Mac's Golf Club on Saturday, August 8, 1936. There was a fine attendance and the enthusiasm regarding the outing was so intense that the Branch expects to make the picnic an annual event.

The following is a list of the winners in the different games and races.

Fat Men's Race, Mr. Larry Nagel.

Kickers' Golf, Mr. R. Redman and Mr. A. B. Wilson.

Open 50 Yard Dash, Mr. Leo Paul.

Three Legged Race, Mr. Redmond and Mr. Keyes.

Golf driving Contest, Mr. Leonard; 2nd Prize, Mr. G. Meyers.

"Money Player"

The big-league ballplayer has that extra something which pulls him up from mediocrity . . . that extra something which means winning ball games . . . So may your product rise above its competitors if it has the advantage of an EGYPTIAN finish.

The EGYPTIAN line, including lacquers, lacquer enamels and synthetics, is a complete line for all industrial finishing. Any one of these finishes is insurance for fine appearance . . . fine performance and increased sales.

The next time you are in the market for a finish call on EGYPTIAN. We will be happy to discuss the matter with you.

EGYPTIAN SUPERIOR LACQUERS

EGYPTIAN · LACQUER

THE EGYPTIAN LACQUER MFG. CO. • ROCKEFELLER CENTER, NEW YORK

Please mention THE MONTHLY REVIEW *when writing*

Wheelbarrow Race, Mr. McKenzie, Mr. J. Cugarau.

50 Yard Blindfold, Mr. Howard Macaleer.

There was also a baseball game. Mr. J. C. Robinson was the Umpire. It was *some game.*

The prizes donated were splendid and were donated by supply houses and manufacturers.

Mr. George Nankervis had charge of the picnic arrangements and deserves great credit for the success of the event. We had perfect weather, everyone had a good time and the outing was considered one of the best times Detroit Branch has had since its organization.

NEW YORK BRANCH

The New York Branch held the second regular meeting of the Summer Season on Friday, August 14th at the World Building, Park Row, New York City. The weather was very warm but a fair attendance was on hand. A short session, with matters relative to the 1937 Convention in New York, up for discussion was carried on. An Educational session presided over by past president John E. Sterling took place afterward. The Branch was honored by a visit from a member of the British Electro-Platers' Institute now in America vacationing, Mr. Sidney Baird of the International Tin Research & Development Council. Mr. Baird of Manfield House, London, after being introduced and made to feel at home, responded with quite an informing talk on the subject of tin and its deposition from the various solutions. Mr. Baird also spoke on the subject of metal rectifiers for electro-plating use and their application on the other side at present. Mr. Baird was extended a rising vote of thanks for his interesting talk.

At this meeting the Branch elected to membership in the Society the following applicants:

Mr. Duncan Brown Copland of the American Banknote Company of Bronx N. Y. (Active).

Mr. Charles Favetta of Fidelitone Records, Inc., of Astoria, L. I., N. Y. (Active)

Mr. Joseph Lerner of Friedman Silver Corporation of Brooklyn, N.Y. (Active)

The meeting was adjourned at 11 o'clock P. M.

F. J. MacStoker, *Sec'y*

ROCHESTER BRANCH

The regular monthly meeting of the Rochester Branch was held at the Seneca Hotel on Friday evening, August 21. Meeting called to order by President Kohlmeier. Minutes of previous meeting read and approved as read. Communications were then read, and acted upon. In response to the letter from our Vice President, Mr. P. J. Sheehan, in regard to the membership campaign, the chair appointed Mr. Frederick Breuning as chairman of our committee. The committee in charge of the joint outing then made its report and was given a rising vote of thanks for a wonderful outing and then was discharged. After a short discussion the meeting was adjourned.

Judson R. Elster, *Sec'y*

WANTED to buy for spot cash a mailing list of firms doing oxidizing. Potential users of McKeon's "Liquid Sulphur" "The Oxidizing Agent of Today". — Sulphur Products Co., Inc., Greensburg, Pa.

RELIANCE PORTABLE PLATING BARREL

(PAT.)

A complete unit which can be suspended in any plating tank at least 24 in. x 18 in. x 10 in. deep. Capacity of barrel one peck of light stampings or 30 lbs. of screw machine products.

Size of barrel 10 in. x 18 in. Weight 32 lbs. Barrel is made of materials which are acid and alkali resisting and non-absorbent. Can be used with all standard solutions except chromium; also with strong cleaners; and at temperatures up to 150 deg. F. Furnished to operate from A. C. circuit 110 or 220 volt, or from 6 volt D. C. plating circuit.

Write for Circular

CHAS. F. L'HOMMEDIEU & SONS CO.

MANUFACTURERS
EQUIPMENT AND SUPPLIES
FOR PLATING AND POLISHING

4521 OGDEN AVE. — CHICAGO — 15 S. CLINTON ST.

BRANCHES: CLEVELAND, LOS ANGELES

DEALERS IN PRINCIPAL CITIES

NEWARK BRANCH

The regular meeting of the Newark Branch, A. E. S. was held on Friday evening, July 17, 1936, at the Hotel Douglas, Hill Street, Newark. The meeting was called to order by President Samuel Taylor. The following officers were present: Samuel Taylor President and George Wagner, Secretary.

The applications of the following were reported on favorably by the Board of Managers and they were Elected as follows:

Mr. Gustave Klinkenstein, Associate Member.

Mr. Edward Royal VanDer Hoef, Associate Member.

Mr. Armand Fritz Von Hirsch, Associate Member.

Mr. Conrad Corda, Active Member.

After a short business meeting, it was decided that there would be no meeting in August. Arrangements were then made for our Annual Fishing Trip which was scheduled to take place on August 22 at Waretown, N. J. Also our Annual Clam Bake which will be held on September 19, at the Old Cider Mill Grove, Union, N. J.

Meeting adjourned at 10:30 P. M.

GEORGE WAGNER, *Sec'y*

PHILADELPHIA BRANCH

Philadelphia Branch A. E. S., August 24, 1936 — meeting called to order by President A. Hirsch. Minutes of previous meeting were read and approved. Communication from Vice President P. J. Sheehan laid over to our September 18th meeting carried. Application of Mr. Harry W. McCall was reported favorably by the Board of Managers. Moved and seconded that Mr. H. W. McCall be elected an active member of Philadelphia Branch, carried. Mr. A. J. Shaffer be suspended for non-payment of dues. Motion by Mr. J. Nelson, seconded by Mr. G. Gehling that the Secretary be instructed to prepare a Philadelphia Branch Roster, keep it up-to-date and have same displayed at all of Philadelphia Branch meetings, carried.

SPECIAL NOTICE. The Speaker for our September meeting is one with whom we are all acquainted. One who knows how to deliver a lecture — also a lecture we can very readily understand, and who is a member of Philadelphia Branch and one whom we are proud to have in our midst.

Topic for September 18, 1936 meeting — The Electro-Platers Tell The World, by Dr. Edward B. Sanigar, who at present is Lecturer in Physical Chemistry and General Chemistry in the Evening Department, Temple University, Philadelphia, Penna. The educational committee arranged this lecture to stimulate the idea of more papers by Practical Electro-Platers. Hence the advance announcement of the lecture is to afford an opportunity to Electro-Platers who anticipate preparing papers. How to experiment, how to collect the data and how to arrange the subject matter for the paper will be discussed during the lecture. Mr. John Nelson, Chairman Educational Committee personally asks all members to make an especial effort to be present at our meeting to hear Dr. Edward B. Sanigar.

Mr. H. Snyder, Chairman Banquet Committee announces the following appointments to serve on said committee: Mr. A. Hirsch, Chairman Educational Session; Mr. W. Reynolds, Program; Mr. G. Gehling, Tickets; Mr. H. Snyder and Mr. R. E. Jackson, Jr., Hall and Menu; Mr. H. Snyder, Mr. S. Barr, Mr. P. Uhl, Favors.

There being no further business, meeting adjourned till Friday, September 18, 1936. R. E. JACKSON, *Sec'y*

TRADE
MATCHLESS
REG. U.S. PAT. OFFICE
MARK

IT IS NOT NECESSARY
TO HAVE
BUFFING PROBLEMS

MANY OFFER TO "SOLVE" YOUR PROBLEMS — WE GUARANTEE TO "PREVENT" THEM

INSIST UPON
MATCHLESS HIGH GRADE
BUFFS
and
BUFFING COMPOSITIONS

There is no substitute for "MATCHLESS"

THE
MATCHLESS METAL POLISH CO.
840 W. 49th Pl. Chicago, Ill.
726 Bloomfield Ave. Glen Ridge, N. J.

Removes insoluble smut without wiping!

With the Magnus Solvent Degreasing Process, insoluble smut can be easily removed from cold rolled steel without wiping.

Work is immersed in a tank of MAGNUSOL then followed with a cold pressure rinse.

Savings in material and operating time mean reduced production costs. Write today for full details about MAGNUSOL for precleaning. Our new data bulletin is yours for the asking.

MAGNUS CHEMICAL COMPANY
41 South Ave. Garwood, N. J.

Magnus
CHEMICAL COMPANY

WALKER'S
FLEXADUR

FLEXIBILITY — ADHESION — DURABILITY

The 3 Dominant Points in Walker's New Metallic Baked Finish

Write for FREE Sample of FLEXADUR —*Write Now*

Give Walker's FLEXADUR a test on your products. Treat it rough. Note the wonderful flexibility of this finish. Observe how it sticks to metal — *that* shows adhesion — and FLEXADUR wears and wears and wears, *that* proves durability.

No wonder manufacturers are constantly demanding Walker's FLEXADUR. It meets their requirements — it's economical. Try it.

H. V. WALKER CO.
ELIZABETH . . . . . N. J.

The Emblem of Quality in Finishes

Please mention THE MONTHLY REVIEW *when writing*

CLEVELAND CONVENTION COMMITTEE'S SPLENDID GIFT

The members and friends of the A.E.S. will be pleased to know that the Cleveland Branch Convention Committee has recently sent the Society a check for one thousand dollars.

Mere words cannot adequately express our thanks for this helpful contribution. We wish to assure President Thompson and every member of the committee that our entire membership deeply appreciates the gift and the spirit in which it was given. The best wishes of our entire organization are extended to Cleveland Branch for the coming year.

INTERNATIONAL CONFERENCE ON ELECTRODEPOSITION

Mr. George B. Hogaboom has been officially appointed by the English Society on Electrodeposition as their representative in this country.

The international conference will be held in London next March, at which time Mr. Hogaboom will be one of the speakers and will officially represent the American Electro-Platers' Society at the conference, the Hanson-Van Winkle-Munning Company defraying his expenses.

This preliminary announcement will be enlarged upon in a subsequent issue when the details of the conference are received from the English Society. In the meantime, we congratulate Mr. Hogaboom for having the good fortune to be America's representative at this all important meeting on the other side of the Atlantic.

HURRY

There are still available a few copies of the proceedings of the Cleveland Convention at five dollars per copy plus postage of twenty-five cents.

All papers and discussions read at the Convention are included in these handsomely bound volumes. Branches, industrial plants and others desiring a copy of the proceedings should apply at once as the demand has been so great that only a limited supply is available. Address your correspondence to W. J. R. Kennedy, Executive Secretary, 90 Maynard St., Springfield, Mass.

You can depend on the performance of Harshaw Anodes.

Whether you require Nickel, Copper, Zinc, Cadmium, Brass, Tin or other anodes, you will be pleased with Harshaw Quality.

Careful selection of raw materials plus thirty years experience, in making better anodes, applied in our modern foundry and laboratories is your assurance of dependable performance in your tanks.

Insist on Harshaw Anodes the next time you buy.

ANODES

THE HARSHAW CHEMICAL CO.

Manufacturers, Importers, Merchants

Offices and Laboratories: CLEVELAND, OHIO

Quality Products Since 1892

New York, Philadelphia, Chicago, Detroit, Pittsburgh
Cincinnati, East Liverpool, Los Angeles, San Francisco

Works at Cleveland and Elyria, Ohio and Philadelphia, Pa.

Please mention THE MONTHLY REVIEW *when writing*

Membership Report

To August 18, 1936

ELECTIONS

H. W. Kuckuck, 2119 Parnell Ave., Fort Wayne, Indiana,
Active, Chicago Branch

C. E. Proudfoot, 10425 Vernon Ave., Chicago, Ill,
Active, Chicago Branch

V. Kubish, 3150 N. Racine Ave., Chicago, Illinois,
Active, Chicago Branch

W. B. Tall, 10 W. Elm St., Chicago, Illinois,
Associate, Chicago Branch

D. B. Stockton, 1943 Walnut St., Chicago, Illinois,
Associate, Chicago Branch

Joseph Lerner, 2224 Douglas Street, Brooklyn, N. Y.
Active, New York Branch

Duncan B. Copland, 132 Woodbine Street, Brooklyn, N. Y.
Active, New York Branch

Charles Favetta, 317 E. 112th St, New York City
Active, New York Branch

APPLICATIONS

Harry W. McCall, 1500 E. 2nd Ave., Miami, Fla.
Active, Philadelphia Branch

Joseph Barron, 27½ Priscilla Road, Brighton, Mass.
Associate, Boston Branch

Louis Henry Cates, 645 Ocean Parkway, Brooklyn, N. Y.
Associate, New York Branch

August R. Hoffman, Hoffman Plating Works, 4933 East 111 St.,
Cleveland, Active member, Cleveland Branch

Leroy Camel, 5216 Forest Ave., Maple Height, Bedford, Ohio
Active member, Cleveland Branch

Washington K. Shockley, 452 Broadway, Beford, Ohio
Cleveland Branch

SPEED in Cleaning Sensitive Metals!

Do you clean aluminum, brass, zinc, tin or die cast metals? If you do, use the specially developed Oakite materials, properly balanced, that meet the exacting requirements of cleaning rapidly, of leaving the metals unharmed. No tarnishing, no discoloration, no etching. Oils, grease, dirt, buffing and polishing compound are removed completely and with a speed that meets today's increasing production schedules.

Whatever your metal cleaning operations are, get the helpful suggestions our service representative in your locality can give you. Write today to have him call. No obligation.

OAKITE PRODUCTS INC. 40 Thames St., NEW YORK

Branch Offices and Representatives located in all principal cities of the U. S.

Since 1909 the standard of cleaning quality

OAKITE

Industrial Cleaning Materials and Methods

CROWN UTILITY BARREL

A COMBINATION

- PLATER
- BURNISHER
- TUMBLER

REQUIRES ONLY A MINUTE TO CHANGE FROM ONE SOLUTION TO ANOTHER.

CROWN RHEOSTAT & SUPPLY CO.

1910 MAYPOLE AVE. CHICAGO, ILL.

Florian E. Webber, 1929 E. 85th St., Cleveland, Ohio,
Cleveland Branch

Edward Thurston, 208 St. Johns Road, Sydney, Australia,
Cleveland Branch

Wm. E. Langenmayr, 515 S. Edward Ave., Syracuse, New York,
Binghamton-Elmira Branch

SUSPENSIONS

Harold M. Brigham, 6 Orris St., Auburndale, Mass.
Boston Branch

Joseph M. Hauber, 59 Newton Ave., E. Braintree, Mass.
Boston Branch

DEATH

Mr. W. Brandt, Milwaukee Branch

THE RESEARCH COMMITTEE'S ACCOUNTS

The office of the Secretary-Treasurer of the above Committee has been transferred to Springfield and will become part of the duties of the Executive Secretary commencing, September 1, 1936.

On behalf of the membership we hereby express our thanks to Mr. Joseph Sexton of Bridgeport Branch for the time and effort spent in successfully handling this position and for his courtesy and cooperation while the transfer was being made.

THE JETAL PROCESS

Developed by the Alrose Chemical Company and sold and serviced exclusively by the Hanson-Van Winkle-Munning Company of Matawan, New Jersey, the Jetal Process is a chemical process for coloring all grades of iron and steel a uniform brilliant jet black.

This process is intended for iron and steel objects which include strip, sheet forgings, tempered steel and malleable castings.

The objects are prepared for treatment by degreasing in any convenient manner, rinsing in water, pickling to remove heavy scale or rust and rinsing again. Immersion in the Jetal bath for the required time, about five minutes, will furnish a thin black finish, adherent enough to bend without destroying its appearance. Highly polished pieces will take a deep, lustrous black finish and dull pieces will have a dull black finish.

Outstanding features of the Jetal Process are low working temperature; a simple solution easily maintained; quick certain action and low cost. Ordinary steel tanks may be used for the solution and work can be handled in bulk, baskets or barrels.